Notice of Allowability	Application No.	Applicant(s)	
	09/865,916	RODRIGUEZ, JOHN	
	Examiner	Art Unit	
	Susanna M. Diaz	3694	

-- ***The MAILING DATE of this communication appears on the cover sheet with the correspondence address***--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the Examiner's Amendment agreed to on March 30, 2007*.

2. ☒ The allowed claim(s) is/are *1-7,10-16,20 and 21*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Susanna Diaz
SUSANNA M. DIAZ
PRIMARY EXAMINER
Art Unit 3694

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Judith A. Szepesi (Reg. No. 39,393) on March 30, 2007.

The application has been amended as follows:

IN THE CLAIMS

1 (Currently Amended) A method to be performed on a computing device for providing improved assignment of product orders to one or more of a plurality of fulfillers, the method comprising:

receiving an order that requires fulfillment from one or more fulfillers, said order comprising individual order items;

ranking said plurality of fulfillers from most favorable to least favorable, based on specified criteria;

evaluating a two-dimensional in-memory data structure, that indicates which of said one or more of the plurality of fulfillers can fulfill which types of said individual order items, to determine whether the order can be fulfilled by a single fulfiller, wherein the two-dimensional in-memory data structure comprises a hash table and is organized based on said ranking;

extending said two-dimensional data structure into a three-dimensional data structure by having at least one entry based on fulfiller and order item type extended into a bit vector indicating one or more order items for a particular fulfiller and order item type, for the order;

when all order items of the order can be fulfilled by a single fulfiller, assigning fulfillment of the entire order to the most-favorable fulfiller that can fulfill all order items; otherwise

splitting the order by assigning fulfillment of individual order items to the most-favorable fulfillers that collectively can fulfill all order items.

2 (Original) The method of claim 1, wherein said criteria include minimizing shipping costs for a customer that is to receive the order.

3 (Original) The method of claim 1, wherein said criteria include minimizing shipping costs for a middleman who received the order from a customer.

4 (Original) The methods of claim 1, wherein said criteria include minimizing shipping costs by minimizing the number of fulfillers used when splitting an order.

5 (Original) The method of claim 4, wherein said minimizing shipping costs comprises minimizing the cumulative shipping distances from said multiple fulfillers.

6 (Original) The method of claim 1, wherein the specified criteria include successively rotating the fulfillers in a round-robin manner to ensure fairness of selection of otherwise equally-qualified fulfillers.

7 (Original) The method of claim 1, further comprising:

automatically generating a fulfillment request based on how fulfillment has been assigned.

8 (Cancelled)

9 (Cancelled)

10 (Currently Amended) A method to be performed on a computing device for providing improved fairness when assigning product orders to one or more of a plurality of fulfillers, the method comprising:

receiving an order that requires fulfillment from one or more fulfillers, said order comprising individual order items;

determining desirable attributes for fulfilling the order among a set of two or more available fulfillers;

ranking the set of fulfillers from most favorable to least favorable, based on said desirable attributes;

evaluating a two-dimensional in-memory data structure, that indicates which of said one or more of the plurality of fulfillers can fulfill which types of said individual order items, to determine whether the order can be fulfilled by a single fulfiller, wherein the two-dimensional in-memory data structure comprises a hash table and is organized based on said ranking;

extending said two-dimensional data structure into a three-dimensional data structure by having at least one entry based on fulfiller and order item type extended into a bit vector indicating one or more order items for a particular fulfiller and order item type for the order;

when all of the order items of the order can be fulfilled by a single fulfiller, assigning the order to the most-favorable fulfiller that can fulfill all of the order items; and

when all of the order items of the order cannot be fulfilled by a single fulfiller, assigning the order to a subset comprising the most-favorable fulfillers that, collectively, can fulfill all order items of the order.

11 (Original) The method of claim 10, wherein said desirable attributes include minimizing shipping costs for a customer that is to receive the order.

12 (Original) The method of claim 10, wherein said desirable attributes include minimizing shipping costs for a middleman who received the order from a customer.

13 (Original) The methods of claim 10, wherein said desirable attributes include minimizing shipping costs by minimizing the number of fulfillers used when splitting an order.

14 (Previously Presented) The method of claim 13, wherein said minimizing shipping costs comprises minimizing the cumulative shipping distances from said fulfillers.

15 (Original) The method of claim 10, wherein the desirable attributes include successively favoring different fulfillers by rotating the fulfillers in a round-robin manner, thereby ensuring fairness of selection of otherwise equally-qualified fulfillers.

16 (Original) The method of claim 10, further comprising:

automatically generating a fulfillment request based on how fulfillment has been assigned.

17 (Cancelled).

18 (Cancelled)

19 (Cancelled).

20 (Original) The method of claim 10, wherein each fulfiller is a selected one of a distributor, supplier, vendor, manufacturer, or service bureau.

21 (New) A method to assign product orders to one or more of a plurality of fulfillers, the method comprising:

receiving an order comprising individual order items, each order item having an item type;

ranking the plurality of fulfillers from most favorable to least favorable, based on one or more desirable attributes;

evaluating a two-dimensional in-memory data structure, that indicates which of said one or more of the plurality of fulfillers can fulfill which item type, to determine whether the order can be fulfilled by a single fulfiller, wherein the two-dimensional in-memory data structure comprises a hash table organized based on said ranking;

generating a three-dimensional data structure by having at least one entry based on fulfiller and item type extended into a bit vector indicating one or more order items from the order;

when all of the order items of the order can be fulfilled by a single fulfiller, assigning the order to the most-favorable fulfiller that can fulfill all of the order items; and

when all of the order items of the order cannot be fulfilled by a single fulfiller, assigning the order to a subset comprising the most-favorable fulfillers that, collectively, can fulfill all order items of the order.

Reasons for Allowance

2. Claims 1-7, 10-16, 20, and 21 are allowed.

3. The following is an examiner's statement of reasons for allowance:

Anderson et al. (US 2001/0042023 A1) discloses the concepts of ranking order fulfillers from most-favorable to least-favorable, attempting to assign a complete order to a single fulfiller when possible, and splitting the order among the most-favorable fulfillers as needed. Anderson does not expressly teach use of a two-dimensional hash table that is organized based on the fulfiller ranking and then extending the two-dimensional hash table into a three-dimensional data structure having at least one entry based on fulfiller and order item type extended into a bit vector indicating one or more order items for a particular fulfiller and order item type, for the order. However, Kamath (US

2002/0026373 A1) discloses an online ordering system that maps out items ordered by a customer into the corresponding item identifier utilized by the vendor determined to be capable of fulfilling an item order request in a hash table, yet Kamath does not disclose the recited fulfiller ranking or the extension of the two-dimensional hash table into a three-dimensional structure having at least one entry based on fulfiller and order item type extended into a bit vector indicating one or more order items for a particular fulfiller and order item type, for the order. Clendinning et al. (US 2002/0107861 A1) maps out products to a core product identifier, vendors, and product availability with each vendor as well as a rating of each product and vendor. Clendinning specifically describes a relational database that stores data in vector format as well as a three-dimensional name database that stores the different products, the different names for the same product, and various data about the product. Clendinning further discloses a website that displays the ranking of a product in a class of similar products. However, Clendinning does not clearly explain that the vendors are ranked from most-favorable to least-favorable nor does Clendinning disclose use of a hash table, much less the step of actively extending the two-dimensional hash table into a three-dimensional data structure, as recited in the claimed invention. While the claimed details of ranking fulfillers, evaluating a two-dimensional hash table, extending the two-dimensional hash table into a three-dimensional data structure, and assigning the order to one or multiple fulfillers are each separately disclosed in the prior art, there is no suggestion to combine of all these features into one single, unified methodology, as recited in claims 1-7, 10-

16, 20, and 21. Consequently, claims 1-7, 10-16, 20, and 21 are deemed to be allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Definition of "Bit array" from http://en.wikipedia.org/wiki/Bit_array, retrieved from the Internet on August 26, 2006 – Provides definitions for a "bit array."

Kuribayashi (JP 10-40255 A) – Discloses details of a hash table.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susanna M. Diaz whose telephone number is (571) 272-6733. The examiner can normally be reached on Monday-Friday, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Trammell can be reached on (571) 272-6712. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Susanna Diaz

Susanna M. Diaz
Primary Examiner
Art Unit 3694

March 30, 2007